

## **LISTING OF THE CLAIMS:**

This Listing of Claims shall replace all prior versions and/or listings of claims in this application.

1. (Withdrawn) An inventory application method, comprising the steps:

specifying whether a search is for orders or materials;

if the search is for orders,

- i) inputting materials available and capturing a complete set of attributes for the materials, and
- ii) looking for feasible matches of the materials against orders;

if the search is for materials,

- i) specifying orders and capturing attributes for routing steps of the orders, and
- ii) looking for feasible matches of orders against materials;

compiling a list of feasible matches;

evaluating each match;

ranking the matches; and

using said rankings to assign materials to orders.

2. (Withdrawn) A method according to Claim 1, further comprising the steps of inputting values for a set of parameters, and wherein:

the step of looking for feasible matches of the materials against orders includes the step of looking for feasible matches of the materials against orders on the basis of said input values;

and

the step of looking for feasible matches of the orders against materials includes the step of looking for feasible matches of the orders against materials on the basis of said input values.

3. (Withdrawn) A method according to Claim 1, wherein the ranking step includes the steps of:

inputting weighted parameters defined by the user; and

ranking the matches according to the weighted parameters.

4. (Withdrawn) An inventory application system, comprising:

means for specifying whether a search is for orders or materials;

means for looking for feasible matches of materials against orders on the basis of input materials available and a set of attributes for the materials;

means for looking for feasible matches of orders against materials on the basis of specified orders and attributes for routing steps of the orders;

means for compiling a list of feasible matches;

means for evaluating each match;

means for ranking the matches; and

means for using said rankings to assign materials to orders.

5. (Withdrawn) A system according to Claim 4, wherein:

the means for looking for feasible matches of the materials against orders includes means for looking for feasible matches of the materials against orders on the basis of input values for

a set of parameters; and

the means for looking for feasible matches of the orders against materials includes means for looking for feasible matches of the orders against materials on the basis of input values for a set of parameters.

6. (Withdrawn) A program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform method steps for managing inventory, said method steps comprising:

specifying whether a search is for orders or materials;

if the search is for orders,

- i) inputting materials available and capturing a complete set of attributes for the materials, and
- ii) looking for feasible matches of the materials against orders;

if the search is for materials,

- i) specifying orders and capturing attributes for routing steps of the orders, and
- ii) looking for feasible matches of orders against materials;

compiling a list of feasible matches;

evaluating each match;

ranking the matches; and

using said rankings to assign materials to orders.

7. (Withdrawn) A program storage device according to Claim 6, wherein said method steps further comprise the step of inputting values for a set of parameters, and wherein:

the step of looking for feasible matches of the materials against orders includes the step of looking for feasible matches of the materials against orders on the basis of said input values; and

the step of looking for feasible matches of the orders against materials includes the step of looking for feasible matches of the orders against materials on the basis of said input values.

8. (Previously Presented) A computer implemented method for allocating finished units in a production facility to orders received from customers for those units, the computer implemented method comprising the steps:

identifying orders from customers for finished units;

identifying finished units in production at a defined time and available to fill said orders;

identifying defects in the finished units and defects that the customers are willing to accept;

of said identified finished units, identifying valid units that are available to be assigned to said orders;

for each of the finished units, creating an associated surface defect map indicating the locations of defects in said each finished unit and characteristics of said defects;

using said defect maps to search for the largest area in each of the finished units that can be assigned to each order;

iteratively assigning and unassigning valid units to said orders, in a defined sequence of said orders, until either (i) all the orders are fulfilled, or (ii) there are no more assignment options to be tested, including

identifying any incomplete orders, and for each identified incomplete order, searching among valid units previously assigned to other orders for a unit that fulfills said identified incomplete order, and

if a unit, previously assigned to some other order, is found that fulfills said identified incomplete order, then (1) unassigning said found unit from said other order and (2) re-assigning said found unit to said identified incomplete order.

9. (Previously Presented) A computer implemented method according to Claim 8, wherein:

the step of identifying finished units and orders includes the step of identifying incomplete orders and a due date for each of the incomplete orders;

the step of iteratively assigning and unassigning valid units includes the step of, starting with the incomplete order having the earliest due date, searching among the available valid units for a unit that fulfills said incomplete order.

10. (Cancelled)

11. (Previously Presented) A system for allocating finished units in a production facility to orders received from customers for those units, the system comprising:

means for identifying orders from customers for finished units;

means for identifying finished units in production at a defined time and available to fill said orders;

means for identifying defects in the finished units and defects that the customers are willing to accept;

means for creating, for each of the finished units, an associated surface defect map indicating the locations of defects in said each finished unit and characteristics of said defects;

means for using said defect maps to search for the largest area in each of the finished units that can be assigned to each order;

means to identify which ones of said identified units are valid units that are available to be assigned to said orders; and to iteratively assign and unassign valid units to said orders, in a defined sequence of said orders, until either (i) all the orders are fulfilled, or (ii) there are no more assignment options to be tested, including

identifying any incomplete orders, and for each identified incomplete order, searching among valid units previously assigned to other orders for a unit that fulfills said identified incomplete order, and if a unit, previously assigned to some other order, is found that fulfills said identified incomplete order, then (i) unassigning said found unit from said other order and (2) re-assigning said found unit to said identified incomplete order.

12. (Previously Presented) A system according to Claim 11, wherein:

the means for identifying finished units and orders includes means for identifying incomplete orders and a due date for each of the incomplete orders; and

the means for iteratively assigning and unassigning valid units includes means for

searching among the available valid units for a unit that fulfills the one of the incomplete orders having the earliest due date.

13. (Cancelled)

14. (Previously Presented) A program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform method steps for allocating finished units in a production facility to orders received, said method steps comprising:

identifying orders from customers for finished units;

identifying finished units in production at a defined time and available to fill said orders;

identifying defects in the finished units and defects that the customers are willing to accept;

of said identified finished units, identifying valid units that are available to be assigned to said orders;

for each of the finished units, creating an associated surface defect map indicating the locations of defects in said each finished unit and characteristics of said defects;

using said defect maps to search for the largest area in each of the finished units that can be assigned to each order;

iteratively assigning and unassigning valid units to orders, in a defined sequence of said orders, until either (i) all the orders are fulfilled, or (ii) there are no more assignment options to be tested, including

identifying any incomplete orders, and for each identified incomplete order, searching among valid units previously assigned to other orders for a unit that fulfills said identified incomplete order, and

if a unit, previously assigned to some other order, is found that fulfills said identified incomplete order, then (i) unassigning said found unit from said other order and (2) re-assigning said found unit to said identified incomplete order.

15. (Previously Presented) A program storage device according to Claim 14, wherein:

the step of identifying finished units and orders includes the step of identifying incomplete orders and a due date for each of the incomplete orders;

the step of iteratively assigning and unassigning valid units includes the step of, starting with the incomplete order having the earliest due date, searching among the available valid units for a unit that fulfills said incomplete order.

16. (Cancelled)

17. (Previously Presented) A computer implemented method according to Claim 8, wherein:

the finished units are metallic units; and

further comprising the step of identifying, for each of a group of the orders, the largest area of each of a set of the identified metallic units that can be assigned to the order.

18. (Previously Presented) Apparatus according to Claim 11, wherein:



the finished units are metallic units; and

further comprising means for identifying, for each of a group of the orders, the largest area of each of a set of the identified metallic units that can be assigned to the order.

19. (Previously Presented) A program storage device according to Claim 14, wherein:

the finished units are metallic units; and

the method steps further comprise the step of identifying, for each of a group of the orders, the largest area of each of a set of the identified metallic units that can be assigned to the order.

20. (Previously Presented) A computer implemented method according to Claim 8, wherein:

the orders have delivery dates; and

the step of iteratively assigning and unassigning valid units includes the step of taking the delivery dates into consideration when iteratively assigning and unassigning valid dates.

21. (Previously Presented) A computer implemented method according to Claim 8, wherein:

the finished units are metallic coils; and

the step of iteratively assigning and unassigning valid units includes the step of allocating each of the orders to precise regions of the coils so that the minimum quality of each order is not violated while minimizing waste of material.

22. (Previously Presented) A computer implemented method according to Claim 8, wherein:

the finished units are metallic coils; and

the step of using said defect maps include the step of, for each of said orders, using the surface defect maps to identify precise regions of the coils that will satisfy said each order.